Announcement of Opportunity

New Frontiers Program 2003
And
Missions of Opportunity

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5.2.2 Protocols and Policies for Handling Returned Samples

Any samples of extraterrestrial planetary materials returned by New Frontiers missions must be delivered to the NASA Astromaterials Curatorial Facility located at NASA's Johnson Space Center (JSC); contact Dr. Carlton Allen, Astromaterials Curator, telephone (281) 483-5126, (Email carlton.c.allen@nasa.gov). Costs for the use of this facility must be included in the NASA OSS Cost. Investigation teams will be responsible for all aspects of the delivery of such materials to this facility, and this facility will be given the task of providing for the physical security, inventory accountability, environmental preservation, and distribution of the samples in support of scientific research programs organized around each mission, including sample processing in support of the mission science team. The science team will be allocated no more than one-quarter by mass of the returned sample unless a larger fraction has been fully justified by the proposed investigation. NASA shall keep the remainder in pristine condition for research competitively proposed by the community at large.

As a proportionate return for investment by foreign participants in a mission that returns extraterrestrial materials, a fraction of the total returned sample may be forwarded to the national curatorial facility of the contributing country within six months after return to the NASA Astromaterials Curatorial Facility. It is expected that the amount of sample so transferred will be approximately proportional to the non-U.S. contribution, but in no case will be more than one-third of the total sample. The terms and conditions of selection of a sample fraction for transmission to the contributing country must be specified in the proposal. However, in the event of selection, the final arrangements for the transfer of a fraction of the sample to the contributing country must be established through an exchange of letters or a Memorandum of Understanding (MOU) between NASA and the contributing foreign participant.

APPENDIX D

NEW FRONTIERS PROGRAM LIBRARY

The New Frontiers Program Library (NFPL) includes documents available electronically via the Internet; many documents are also available as a paper copy from their original source. Note that not all documents are actually located in the NFPL. For these documents, an Internet hyperlink has been provided via the NFPL to allow download of the documents from their home location.

It is incumbent upon the proposer to ensure that the documents used in proposal preparation are of the date and/or revision listed in this Announcement of Opportunity (AO).

The NFPL is accessible on the World Wide Web at the URL:

http://newfrontiers.larc.nasa.gov/newfrontiers/NFPL.html

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General Guidelines and Requirements Documents

NPD 7100.10D Curation of Extraterrestrial Materials (February 2003)
Provides information on the curation of extraterrestrial materials via NASA's Curatorial Facility at JSC.

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New Frontiers Guidelines and Requirements Documents

Anticipated Costs and Capabilities of the NASA Curatorial Facility (September 2003)
Describes the NASA Curatorial Facility costs and capabilities.

NPD 7100.10D Curation of Extraterrestrial Materials (2 / 2003)

5f. The Center Director of Johnson Space Center (JSC), or designee, the Astromaterials Curator, is responsible for the following:

(1) The curation of all extraterrestrial material under NASA control, including future NASA missions. Curation includes documentation, preservation, preparation, and distribution of samples for research, education, and public outreach.

(2) The physical security, protection, preservation and environment of extraterrestrial materials at JSC Curatorial Laboratories; and the suitable offsite storage of a representative sampling of the curated extraterrestrial mterials.

(3) The development and maintenance of the system of detailed procedures through which the distribution of curated extraterrestrial materials are controlled, and the implementation of that system in conjunction with other NASA offices as necessary.

(4) The development and maintenance of a unified, thorough, and up-to-date set of procedures on control and security of curated extraterrestrial materials.

Anticipated Costs and Capabilities of the NASA Curatorial Facility (9 / 2003)

Any samples of extraterrestrial planetary materials returned by New Frontiers missions must be delivered to the NASA Astromaterials Curatorial Facility located at NASA's Johnson Space Center (JSC); contact Dr. Carlton Allen, Astromaterials Curator, telephone (281) 483-5126. Costs for use of this facility must be included in the NASA OSS Cost. Investigation teams will be responsible for all aspects of the delivery of such materials to this facility, which will be given the task of providing for the physical security, inventory accountability, environmental preservation, and distribution of the samples in support of scientific research programs organized around each mission, including sample processing in support of the mission science team. The science team will be allocated no more than 25 percent (by mass) of the returned sample unless a larger fraction has been fully justified by the proposed investigation. NASA shall keep the remainder in pristine condition for research competitively proposed by the community at large.

Funding for use of the JSC Curatorial Facility, including laboratory construction or modification, must be included in the budget for the proposed mission. The anticipated costs of sample curation are based on the following guidelines:

The actual costs for all aspects of curation will be borne by the mission for two years prior to and two years following spacecraft return. After that time, the continuing costs will be borne by the same organization that funds curation of other extraterrestrial samples (currently the NASA Cosmochemistry Program).

Samples from a lunar mission will be curated in the present Lunar Curatorial Facility, but separated from the Apollo lunar collection. Samples will be processed and stored in nitrogen gas at ambient temperature. A cost estimate is presented below for such curation.

Samples from a comet mission will be curated in a new laboratory, to be constructed within existing space at JSC. Samples will be processed and stored in nitrogen gas. Costs estimates are presented below for curation at two temperatures: ambient and -40 C. If the mission requires curation at lower temperatures, technology and costs for such curation must be included in the proposal.

Any requirements for special sample containment and handling beyond that needed for scientific purposes will be determined prior to launch by the NASA Planetary Protection Officer in accordance with NPD 8020.7E "Biological Contamination Control for Outbound and Inbound Planetary Spacecraft" or the current revision. The additional curation costs generated by any such special requirements will be borne by the mission.

Cost estimates are presented in FY03 dollars. JSC Full Cost Accounting estimates are included for Civil Servant Full-Time Equivalent (CS FTE) and JSC Support Contractor Full-Time Equivalent (CON FTE) personnel. All cost estimates must be recalculated to real year dollars using the NASA New Start Inflation Index (AO Table B-3).

Estimated Curatorial Costs for a Lunar Sample Return Mission

Activities and Personnel

	Costs FY03 $K	Total FY03 $K
Tasks: Personnel Support and Training, Laboratory Preparation, Laboratory Certification		
Second year prior to Mission Return		
Laboratory Manager (0.25 CS FTE)	37	
Facility Engineer (0.10 CS FTE)	15	
Sample Processor (0.25 CON FTE)	33	
Laboratory Technician (0.25 CON FTE)	33	
Equipment (2 processing cabinets)	200	
Supplies and Consumables	20	
Reserve (10%)	34	372
First year prior to Mission Return		
Laboratory Manager (0.25 CS FTE)	37	
Facility Engineer (0.10 CS FTE)	15	
Sample Processor (0.50 CON FTE)	67	
Laboratory Technician (0.50 CON FTE)	67	
Supplies and Consumables	20	
Communication	5	
Reserve (10%)	21	232
Mission Return		
Tasks: Personnel Support, Laboratory Operation, Sample Receipt, Initial Characterization, Publication of Descriptions, Distribution		
First year following Mission Return		
Laboratory Manager / Curator (0.25 CS FTE)	37	
Sample Processor (1.00 CON FTE)	134	
Laboratory Technician (0.50 CON FTE)	67	
Supplies and Consumables	20	
Communication	5	
Reserve (10%)	26	289
Second year following Mission Return		
Laboratory Manager / Curator (0.25 CS FTE)	37	
Sample Processor (1.00 CON FTE)	134	
Laboratory Technician (0.50 CON FTE)	67	
Supplies and Consumables	20	
Communication	5	
Reserve (10%)	26	289

Estimated Curatorial Costs for a Comet Sample Return Mission (ambient temperature)

Activities and Personnel

	Costs FY03 $K	Total FY03 $K
Tasks: Personnel Support and Training, Laboratory Preparation, Laboratory Certification		
Second year prior to Mission Return		
Laboratory Manager (0.50 CS FTE)	73	
Facility Engineer (0.25 CS FTE)	37	
Sample Processor (0.50 CON FTE)	67	
Laboratory Technician (0.50 CON FTE)	67	
Laboratory Construction	800	
Equipment (2 processing cabinet)	200	
Supplies and Consumables	30	
Reserve (10%)	127	1401
First year prior to Mission Return		
Laboratory Manager (0.50 CS FTE)	73	
Facility Engineer (0.25 CS FTE)	37	
Sample Processor (1.00 CON FTE)	134	
Laboratory Technician (1.00 CON FTE)	134	
Laboratory Construction and Certification	200	
Supplies and Consumables	30	
Communication	5	
Reserve (10%)	61	674
Mission Return		
Tasks: Personnel Support, Laboratory Operation, Sample Receipt, Initial Characterization, Publication of Descriptions, Distribution		
First year following Mission Return		
Laboratory Manager / Curator (0.50 CS FTE)	73	
Sample Processor (1.00 CON FTE)	134	
Laboratory Technician (1.00 CON FTE)	134	
Supplies and Consumables	30	
Communication	5	
Reserve (10%)	38	414
Second year following Mission Return		
Laboratory Manager / Curator (0.50 CS FTE)	73	
Sample Processor (1.00 CON FTE)	134	
Laboratory Technician (1.00 CON FTE)	134	
Supplies and Consumables	30	
Communication	5	
Reserve (10%)	51	414

Estimated Curatorial Costs for a Comet Sample Return Mission (temperature –40 C)

Activities and Personnel

	Costs FY03 $K	Total FY03 $K
Tasks: Personnel Support and Training, Laboratory Preparation, Laboratory Certification		
Second year prior to Mission Return		
Laboratory Manager (0.75 CS FTE)	110	
Facility Engineer (0.50 CS FTE)	73	
Sample Processor (0.50 CON FTE)	67	
Laboratory Technician (0.50 CON FTE)	67	
Laboratory Construction	1000	
Equipment (2 refrigerated processing cabinets)	400	
Supplies and Consumables	40	
Reserve (20%)	351	2108
First year prior to Mission Return		
Laboratory Manager (0.75 CS FTE)	110	
Facility Engineer (0.50 CS FTE)	73	
Sample Processor (1.00 CON FTE)	134	
Laboratory Technician (1.00 CON FTE)	134	
Laboratory Construction and Certification	200	
Automation (micromanipulators)	200	
Supplies and Consumables	40	
Communication	5	
Reserve (20%)	179	1075
Mission Return		
Tasks: Personnel Support, Laboratory Operation, Sample Receipt, Initial Characterization, Publication of Descriptions, Distribution		
First year following Mission Return		
Laboratory Manager / Curator (0.75 CS FTE)	110	
Sample Processor (1.00 CON FTE)	134	
Laboratory Technician (1.00 CON FTE)	134	
Supplies and Consumables	40	
Communication	5	
Reserve (20%)	85	508
Second year following Mission Return		
Laboratory Manager / Curator (0.75 CS FTE)	110	
Sample Processor (1.00 CON FTE)	134	
Laboratory Technician (1.00 CON FTE)	134	
Supplies and Consumables	40	
Communication	5	
Reserve (20%)	85	508